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U. S. DEPARTMENT OF AGRICULTURE

PIGGYBACK TRANSPORTATION FOR PACIFIC NORTHWEST COOPERATIVES

by
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FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE

General Report 86 November 1960

FARMER COOPERATIVE SERVICE
U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON 25, D. C.

Joseph G. Knapp, Administrator

The Farmer Cooperative Service conducts research studies and service activities of assistance to farmers in connection with cooperatives engaged in marketing farm products, purchasing farm supplies, and supplying business services. The work of the Service relates to problems of management, organization, policies, merchandising, product quality, costs, efficiency, financing, and membership.

The Service publishes the results of such studies; confers and advises with officials of farmer cooperatives; and works with educational agencies, cooperatives, and others in the dissemination of information relating to cooperative principles and practices.

This study was conducted under authority of the Agricultural Marketing Act of 1946 (RMA, Title II).

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Summary

Providing customers with a flexible, more personalized type of service is of growing importance to marketing firms generally. Buyers are finding that one of the most effective means of reducing overhead costs is to hold inventories to minimum levels. To do this, they make more numerous purchases, but in smaller lots. Many cooperative processors now own and operate their own motortrucks to meet this demand for greater flexibility in distributing their commodities.

Several cooperative fruit and vegetable processors in the Pacific Northwest requested the Farmer Cooperative Service to study alternative methods of long distance shipments for their products particularly to midwestern markets.

Special emphasis in this study was placed on exploring methods for developing more effective use of cooperatively-owned and operated motortrucks, stressing piggyback transportation of such equipment on railroad flatcars.

Railroads offer five piggyback services at the present time. Briefly, Plan I is a single bill of lading movement of trailers of common carrier truckers on railroad flatcars. Plan II is an all railroad service offering complete door-to-door service to the shipper. Plans III and IV are rail terminal to rail terminal services only. Under Plan III, shippers furnish the truck trailers and, under Plan IV, railroad flatcars as well. Rates are based on a flat charge per car, whether trailers are loaded or empty, and shippers perform their own pick-up and delivery. Plan V is a joint rail-truck arrangement under which each carrier performs a portion of the service from origin to final destination at published rates, the agreed division of which accrues to each carrier.

As piggyback Plans III and IV utilize shipper's equipment to complete a door-to-door movement, these services were given primary consideration. Where utilization of shipper owned equipment is not an important consideration, Plans I, II, and V would bear further analysis.

Principal findings of the study follow:

1. Piggyback Possibilities.--Railroad Plans III and IV offered some opportunities for transportation savings and improved service. However, no Plan III piggyback program was available from the Pacific Northwest to the Midwest at the time of the study.

The estimated costs under Plan IV of approximately 189 to 194 cents per 100 pounds excluding loading and unloading costs, indicated considerable savings on westbound shipments of relatively high rated commodities such as farm equipment and supplies.

On the other hand, prevailing carload rail rates on eastbound shipments of canned goods from the Pacific Northwest to midwestern markets of 157 cents per 100 pounds might limit diversion of this traffic to piggyback service on a cost basis only. Carload rates on frozen foods to midwestern markets of 206 to 210 cents per 100 pounds, however, were about 5 cents above corresponding piggyback costs. Major flexibility features under piggyback plans, plus definite reductions in loss and damage claims, are important factors that undoubtedly will be considered by shippers in analyzing piggyback possibilities in terms of present day needs.

2. Advantages and Disadvantages of Piggyback Program.--Principal advantages of a piggyback transportation program cited by the cooperating associations and indicated by the study were:

a. Greater flexibility in both product loading and service to customers.

b. Possible speedup in transit time over present rail movement.

c. Reductions in inventory requirements.

d. Smaller lots, split deliveries, multiple pick-ups, and door-to-door service.

e. Savings in direct transportation costs, particularly on westbound shipments.

f. Advantages of pooling small lots.

g. Reduced loss and damage.

h. Reductions in handling costs.

i. Potential means of expanding total market and improving product distribution.

Disadvantages include:

a. Higher transportation costs on lower rated agricultural commodities.

b. Shippers are responsible for protective services under piggyback Plans III and IV.

c. Adequate backhaul traffic needed to make Plans III and IV attractive.

d. Some additional investment in equipment.

e. Organization difficulties, plus administrative problems and costs.

3. Backhaul Possibilities.--If cooperative processors decide to use Plan IV piggyback service to move their products from the Pacific Northwest to the Midwest, sufficient westbound backhaul tonnage must be developed to insure that shipper controlled hauling equipment is productively employed. The westbound movement of farm supplies by cooperatives, while limited at the time of this report, might be expanded if transportation costs could be reduced and service improved.

4. Possible Alternative to Balanced Traffic Program.--One-way lease arrangements for trailers and flatcars may become more readily available to shippers. With this type of program, the need for shippers to develop backhaul tonnage under Plans III and IV would be eliminated.

5. Private Carriage.--While major emphasis in this report was on piggyback operations, private over-the-road motor carrier operations were also considered.

Transportation costs of five Pacific Northwest processors for over-the-road long distance trucking averaged about 37 cents a vehicle mile. On this basis, a 35,000 pound shipment over 2,250 miles (Portland to Chicago) would cost 238 cents per 100 pounds, at 2,000 miles 211 cents, and at 1,750 miles (Portland to Minneapolis), the cost per 100 pounds would be 185 cents.

Over the longer distance, truck transportation costs would be considerably more than piggyback costs, but slightly less at a distance of 1,750 miles and under. Lower private carrier operating costs would, of course, narrow the advantage shown in this report for piggyback Plans III and IV over the longer hauls.

Private trucking over long distances, particularly on a one-way haul basis, would offer limited possibilities for savings on transportation costs. However, other advantages such as flexibility and more effective shipper control of lading and routing might offset higher transportation costs as a determining factor in some cases.

Piggyback Transportation for Pacific Northwest Cooperatives

by William C. Bowser, Jr.

Transportation Branch

Management Services Division

Rising transportation costs, coupled with a trend to small lot "hand to mouth" buying of mixed loads of processed fruits and vegetables, have been of increasing concern to cooperative and other fruit and vegetable processors in the Pacific Northwest. To meet the growing need for greater flexibility in product distribution and handling, many cooperatives have shifted from rail to motortruck transportation. Some cooperatives operate their own truck fleets to provide this service.

A large part of the total market of Washington and Oregon fruit and vegetable processors exists in the Midwest and East. Operating motortrucks over such distances has proved costly. In many instances the high costs of long distance hauling outweigh the service advantages inherent in private motortruck transportation.

Several Washington and Oregon cooperatives requested the Farmer Cooperative Service to study alternative methods for transporting and handling products shipped by these associations. A primary purpose of the report was to assist cooperative shippers and others in appraising the possible uses of piggyback transportation. Special emphasis was placed on determining the feasibility of piggyback operations, using shipper owned or leased trailers on railroad flatcars.

This report was exploratory in nature, based on both survey data and information assembled from other sources. Practically no data on costs of piggyback operations were readily available other than testimony and exhibits in related cases before the Interstate Commerce Commission. For this reason, results of the study are tentative.

Volume and distribution of processed fruits and vegetables shipped by selected Pacific Northwest cooperatives to midwestern markets are shown. Available data regarding shipper costs under railroad piggyback plans were assembled to better evaluate the use of these services under present conditions. Supplemental economic and factual transportation data were also included in the report for determining the possibilities and limitations of a transportation program of this nature.

Method of Study

Data regarding actual shipments during calendar year 1957 came from five cooperative fruit and vegetable processors in the Pacific Northwest. Association records furnished information on number and volume of shipments, origin, destination, pickup and stop-off points, type of commodity, method of transportation, and rates charged. Railroads serving the areas supplied additional information on service, rates, and potentials of piggyback operation.

Information regarding shipper costs under piggyback operations was obtained largely from testimony and exhibits presented in related I.C.C. cases, especially I.C.C. Docket 32533 and I. & S. Docket 7034.[1] This information was particularly pertinent to the study but was not available until mid-1959.

Shipments Largely by Rail

Fruit and vegetable processors of the Pacific Northwest have for years depended largely on rail transportation to move products to important midwestern markets. Cooperative processors have been no exception. Over 95 percent of the volume of those cooperatives concerned in this study moved by rail.

This was mainly due to a distance between terminal points of around 2,000 miles. While long distance trucking may have advantages in flexibility of service, lower rail rates available, particularly on canned goods, on hauls of this distance may outweigh the advantages offered by most for-hire motor carriers. Products shipped by the cooperatives in this study were mainly canned goods. However, an increasing proportion of frozen foods shipped by all northwestern processors to midwestern markets have been moving by motortruck.

Midwestern Markets

Pasco and Yakima, Wash., and Portland, Oreg., were origins for the 1957 eastbound traffic of processed fruits and vegetables destined to Chicago and Minneapolis as reported by five cooperative processors.[2] The bulk of the movement, mainly canned goods, went by rail (table 1). Of the rail shipments, 19 were from Pasco, 34 from Yakima, and 101 from Portland. Total rail volume amounted to 6,818,567 pounds, or 44,276 pounds per shipment. Only 16 shipments were by truck, with an average load per truck of 21,594 pounds.

In terms of 35,000 pound truck trailer load equivalents, Portland was the largest shipping center with 99 units. Yakima was next with 72 and Pasco 35. The total for the three sources, in truck trailer equivalents, was 206 units.

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[1] ICC Docket 32533--The Eastern Central Motor Carriers Association, Inc. versus the Baltimore and Ohio Railroad Company, et al.

I.&S. Docket 7034--All freight between Chicago and Portland, Seattle, Tacoma, et al.

[2] Chicago and Minneapolis were used as midwestern terminals in this study as Plan IV piggyback rates were available to Chicago from Pacific Northwest points, with Minneapolis an intermediate point. As shown in Table 3, some shipments actually moved to points beyond the metropolitan areas of these cities.

TABLE 1.--Eastbound shipments of canned and frozen foods from selected cooperative fruit and vegetable processors in Washington and Oregon to midwestern markets, by rail and truck, actual volumes and 35,000 pound equivalents, 1957

Origin	Mode of transport	Number of shipments		Pounds		Destination	Number of shipments		Pounds	
		Actual	35,000 lb. equivalents	Total	Average per shipment		Actual	35,000 lb. equivalents	Total	Average per shipment
Pasco, Washington	Rail	19	30	1,061,699	55,879	Chicago, Ill.	17	28	993,962	58,468
						Minneapolis, Minn.	2	2	67,737	33,868
Yakima, Washington	Rail	34	69	2,421,663	71,225	Chicago, Ill.	103	138	4,817,646	46,773
Portland, Oregon	Rail	101	95	3,335,205	33,022	Minneapolis, Minn.	32	27	939,222	29,351
Pasco, Washington	Truck	9	5	182,860	20,318	Minneapolis, Minn.	4	2	87,459	21,865
						Chicago, Ill.	5	3	95,401	19,080
Yakima, Washington	Truck	2	3	91,045	45,522	Chicago, Ill.	4	4	157,390	39,348
Portland, Oregon	Truck	5	4	136,390	27,278	Minneapolis, Minn.	3	2	70,045	23,348
Total		170	206	7,228,862	42,523[1]	-	170	206	7,228,862	42,523[1]

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[1] Average.

Chicago was the major destination center and accounted for 5,811,608 pounds, or 85 percent of the rail shipments. Of the truck shipments, nine loads, averaging 28,089 pounds, went to Chicago and seven loads averaging 22,500 pounds moved to the Minneapolis area.

Trailer load equivalents of Chicago bound shipments, 35,000 pound lading, were 173. Trailer equivalents to the Minneapolis area were 33.

Shipments shown in table 1 were largely canned fruits and vegetables. Table 2 indicates the movement of frozen fruits and vegetables from Washington and Oregon processors to the Chicago and Minneapolis trading areas.

Data in table 2 represented approximate shipments of 18 major processors in Washington and Oregon, and a significant part of the movement was from cooperative plants. Washington and Oregon processors shipped some 4.8 million pounds of frozen fruits and vegetables to Chicago-Peoria markets and 708,000 pounds to the Minneapolis-St. Paul-Duluth area.

Seventy-four percent of the Chicago bound traffic was by rail. In contrast, all of the movement to the Minneapolis market area was by motortruck. The movement of frozen fruits and vegetables to Chicago was comparable to 138 trailer units of 35,000 pounds lading each, and shipments to Minneapolis represented some 20 trailer units.

Assembly and Distribution

One of the objectives of the study was to determine the possibilities for utilizing rail piggyback transportation for moving privately operated trucking equipment between the Pacific Northwest and the Midwest. Therefore, the areas of pickup at origin and of delivery at destination centers needed to be determined. The area for assembling commodities at origin rail terminals and the pattern of distribution at destination terminals are indicated by a mileage breakdown of eastbound traffic for both rail and truck in 1957 (table 3).

TABLE 2.--Rail and truck shipments of frozen fruits and vegetables from 18 major processors in Washington and Oregon to the Chicago and Minneapolis trading areas, 1957

Origin	Chicago - Peoria			Minneapolis - St. Paul - Duluth		
	Rail	Truck	Total	Rail	Truck	Total
	1,000 pounds			*1,000 pounds*		
Oregon:						
Pounds	207	318	525	-	376	376
Percentage	39	61	100	-	100	100
Washington:						
Pounds	3,349	963	4,312	-	332	332
Percentage	78	22	100	-	100	100
Total - pounds	3,556	1,281	4,837	-	708	708
Percentage	74	26	100	-	100	100

Based on data collected for Marketing Research Report 316, "Interstate Trucking of Frozen Fruits and Vegetables Under Agricultural Exemption," AMS and FCS, March 1959.

TABLE 3.--Eastbound rail and truck shipments of processed fruits and vegetables, by selected Pacific Northwest cooperatives, in mileage blocks showing distances of pickup at origin and of deliveries at destination, by 35,000-pound units, 1957

Origins and destinations	Total shipments	Total 35,000 lb. equivalents	Mileage blocks for pickup at origin and delivery at destination				
			0-50	51-100	101-150	151-200	201-250
Origins:							
	Pounds		*35,000 pound equivalent*				
Pasco, Washington	1,244,559	35	11	24	(1)	0	0
Yakima, Washington	2,512,708	72	72	0	0	0	0
Portland, Oregon	3,471,595	99	98	1	0	0	0
Total	7,228,862	206	181	25	(1)	0	0
Destinations:							
Chicago, Illinois	6,064,399	173	73	39	6	52	3
Minneapolis, Minnesota	1,164,463	33	18	6	7	2	(1)
Total	7,228,862	206	91	45	13	54	3

[1] Less than one-half unit.

The bulk of the processed fruits and vegetables shipped by the cooperatives included in this study was loaded at plant sidings within the immediate rail terminal area. With shipments in terms of 35,000 pound equivalents, 181 units, or nearly 90 percent of the eastbound traffic were picked up within a 50-mile area. Nearly all of the shipments from Yakima and Portland were from local plants, but 24 of the 35 units originating from the Pasco area were in the 51 to 100 mile block.

Of the 173 trailer units going to the Chicago market area, 73 units or 42 percent were for local distribution, 39 units were in the second mileage block, while 52 units were in the fourth block, or 151-200 miles. About half of the shipments to the Minneapolis area also were destined for points some 50 to 200 miles from the market center.

It appears from these data that a minimum of trucking would be needed at eastbound origin terminals. On the other hand, over half of the shipments of fruits and vegetables reaching destination rail terminals would require drayage of from 50 to 200 miles, unless rail unloading ramps were available at points nearer the final destination.

Alternative Methods of Transportation

In recent years, particularly since World War II, fruit and vegetable wholesalers as well as large and small retail firms have become conscious of the need to reduce their costs in line with competitive pressures. An important means to do this has been to reduce inventories. This, in turn, has resulted in small lot buying of mixed loads of processed fruits and vegetables, as well as a demand for greater flexibility in service.

The primary cost factor to suppliers in meeting customer demands for better service is in product handling and transportation. Transportation costs have, in themselves, been rising. Many shippers have turned to private carriage to meet their shipping needs and hold transportation costs in line. Special common carrier services, such as piggyback Plans III and IV, may prove to be effective alternatives.

Private Carriage

One method open to shippers for reducing transportation costs and improving service is to enter into the business of transportation themselves, that is, into private motor-truck operations. Many firms have taken this step in various degrees. A large number of associations have purchased trucks and equipment to meet their local distribution needs and interplant movement, while continuing to use for hire carrier service for the longer hauls.

A small but increasing number of firms, however, have enlarged their truck fleets to provide long distance hauling, mainly to the extent that they are able to secure an appreciable volume of backhaul or return loads. In this way, processors have been able to give their customers the type of service they want and still maintain their transportation and handling costs at a reasonable level.

One of the primary deterrents to firms in utilizing private transportation, however, is the high initial cost of purchasing necessary hauling equipment and providing maintenance facilities. In addition, fleet maintenance and the administration of a transportation division are, in themselves, major operations. Unless an association has the necessary volume, capital, and know-how, this can be a risky undertaking.

For these reasons, and others, many cooperatives are not able, or do not care to operate their own equipment, particularly on long hauls where the problem of securing backhauls becomes too great an administrative burden.

Piggyback Service

Private carriage, whether by individual shippers or shipper associations, has grown rapidly in the past 10 years. This has been of concern to for-hire carriers. Because of a loss of inter-city tonnage to other modes of for-hire transportation, railroads especially have been concerned over the loss of additional business to private carriers. In a major effort to prevent the further erosion of their traffic, many railroads have offered a not entirely new but nevertheless dramatic service to shippers--the truck trailer on rail flatcar, or piggyback, as it is commonly called.

At the time of this report, five separate so-called plans or types of piggyback services were available on certain railroads on a limited basis.

Briefly, Plan I is a single bill of lading movement of trailers of common carrier truckers on railroad flatcars.

Plan II is an all railroad service offering complete door-to-door service to the shipper.

Plans III and IV are rail terminal to rail terminal services only. Under Plan III, shippers furnish the truck trailers. Under Plan IV, shippers furnish the railroad flatcars as well as the truck trailers. Rates are based on a flat charge per car, whether trailers are loaded or empty, and shippers perform their own pickup and delivery services.

Plan V is a joint rail-truck arrangement under which each carrier performs a portion of the service from origin to final destination at published rates, the agreed division of which accrues to each carrier. Plan V will not be discussed further in this study as its application is limited and relatively few railroads are providing this service.

Plans III and IV have been curtailed somewhat due to complaint proceedings initiated by common motortruck carriers. As a result of the temporary suspension of certain of these rates by the Interstate Commerce Commission (I.C.C.), many potential users of Plans III and IV services have been awaiting a decision on these hearings before making any investments necessary for this type operation.

It is not the purpose of this report to go into the history of piggyback service and its beginnings will be mentioned only briefly. Probably the first important service of this kind occurred in 1884 when the Long Island Railroad hauled farmers' wagons at a flat rate of $4 for the wagon, two horses, and the driver. This service, however, dwindled away within a few years.

Various railroads made several additional attempts to establish piggyback service in the 1920's and early 1930's but failed for one reason or another. While a few railroads have had some success in these operations in later years, the piggyback boom did not really get underway until the early 1950's. Today, over 50 railroads are offering one or more of the piggyback services compared with only 8 in 1953.

Piggyback Plans III and IV offer opportunities for transportation savings and improved service for shippers who want to control their own equipment. However, Plans I and II were considered in this report for the purpose of clarification. Where utilization of shipper-owned equipment is not an important consideration, Plans I, II, and V would bear further analysis.

Plan I

Plan I is unique among the services offered. Under Plan I, the common motor carriers and the railroads work together to give the shipper a door-to-door single bill of lading movement of his commodity. The motor carrier bills the shipper, basing the rates charged on the commodity classification of the article shipped. The amount the motor carrier pays the railroad for hauling the loaded trailer from terminal to terminal is a flat charge which, under decision by I.C.C., is regarded as a division of a joint rate.[3]

Plan I may prove useful to cooperatives where available to them. However, it is essentially a complete service and, as such, does not provide cooperatives the opportunity to use their motortruck equipment more effectively.

Approximately 27 railroads throughout the United States have a

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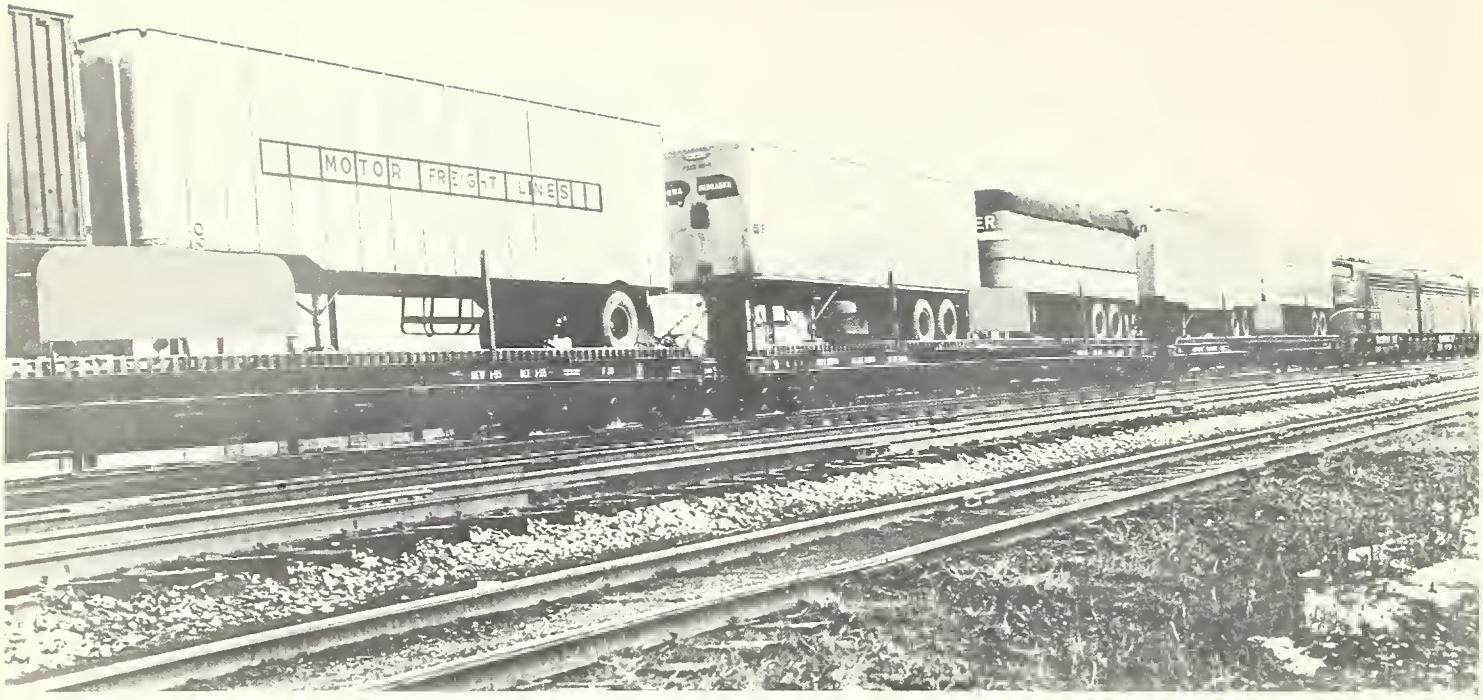
[3] Motor - Rail - Motor Traffic in East and Midwest, 219 I.C.C. 245; Movement of Highway Trailers by Rail, 293 I.C.C. 93.



Over 50 railroads were offering one or more piggyback services in 1960, compared with only 8 in 1953. Marked reductions in switching, loading, and unloading time help piggyback flatcars average four times as many car miles a day as boxcars.

Plan I program. Rates to motor carriers for the rail haul are approximately equal to what their over-the-road costs would be. Therefore, there is little incentive on the part of motor carriers to revise their rate structures to shippers in light of this plan.

Plan II

Plan II, an all railroad service, offers a complete movement to the shipper by utilizing rail owned or leased trailers and equipment. This plan coordinates both motor and rail vehicles under a single arrangement, with the direction and control of the shipment the responsibility of the rail carrier.

Charges to shippers under Plan II are on an all-inclusive basis, and are comparable in most respects to those of common motor carriers for similar door-to-door service.

Plan II is often the first type of piggyback service offered by a railroad. After gaining operational experience under this plan, many of the railroads extend their programs to include one or more of the other types of services. Approximately four-fifths of the 55 or so railroads instituting piggyback services offer Plan II and well over half of these have other plans.

The lawfulness of Plan II rates was upheld in July 1954 by the I.C.C. in "Trailers-on-flat-cars, Eastern Territory, 296 I.C.C. 219." In this action, the Commission vacated an Order of Suspension which had been entered in June of that year.

While Plan II service of railroads has grown steadily since its most recent inception, volume of traffic under this plan constituted a minor part of total rail tonnage.

According to the railroads, 5 years of experience under Plan II has produced certain conclusions:[4]

1. Plan II service is generally not profitable on the shorter hauls.

2. Expenses of terminal trucking must be closely controlled or they will quickly eat into net revenue.

3. This type of service can never be fully competitive with highway motor service.

4. Plan II lacks the flexibility for stop-offs enroute, departure times from all terminals are limited awaiting accumulation of sufficient volume to dispatch trains, delivery times are limited by train arrivals, and closing times convenient for one shipper may be inconvenient for another.

Plans III and IV

Piggyback Plans III and IV were designed specifically by the railroads to meet the challenge of private carriage and to maintain their competitive position on long haul traffic. According to the railroads, this could be effectively accomplished only by offering a shipper service competitive in cost and service to that of private truck operation. With this as a goal, the railroads formulated all commodity, trailer-on-flatcar rates that approximated the costs private motor carriers would avoid when substituting the rail-line haul portion of the overall through movement from shipper's plant to receiver's dock.

Much of the basis for rates charged shippers under Plans III and IV was railroad cost data under Plan II, as well as special studies and actual operating costs of private shippers. The maximum effective rate that could be charged shippers under Plan III was determined to be 25 cents a rail mile per trailer and under Plan IV, 20 cents a mile per trailer. The principal difference between the two services is that under Plan III, the shipper furnishes the trailers; and under Plan IV, the shipper furnishes both the trailers and the flatcar.

However, Plan III and IV rail charges cover only the terminal to terminal segment of the total movement. In addition, the user has various other costs, the amount depending largely on the particular circumstances of the shipment. The major additional charges or costs, to the shipper, can be outlined as follows:

1. Owning or leasing the trailers (Plan III), or trailers and flatcars (Plan IV), for the period necessary to complete the movement.
2. Loading the trailers at the shipper's plant or warehouse.
3. Moving the trailers to the rail ramp location.
4. Loading and unloading trailers to and from rail flatcars (Plan IV only).
5. Moving the trailers from the rail ramp at destination to the receiver's terminal, and
6. Unloading the trailer.

As indicated, the additional cost to shipper over and above the rail line-haul charge varies with the type of equipment desired, the nature of the commodity, the length of haul, and traffic conditions at either end of the rail terminals.

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[4] As reported in the "Brief of Defendant Railroads," pp. 34, 35, I.C.C. Docket No. 32533, Eastern Central Motor Carriers Assn., vs. the B&O Railroad Co., et al.

Whether a transportation program embodying the principles of Plan III or IV can be developed depends first on the availability of these services at a satisfactory rate and, second, on a reasonably balanced east-west movement of traffic.

The part that piggyback services play in cooperative transportation programs of the near future may depend largely on decisions rendered by the Interstate Commerce Commission regarding railroad Plans III and IV.

In a proposed report by I.C.C., released August 12, 1960, the hearing examiner for the case recommended that the Commission find Plan III and IV rail rates and charges on freight, all kinds, to be "unjust and unreasonable, otherwise unlawful . . ." This finding is subject to exceptions, however, by the respondent railroads and shippers. The final decision regarding the lawfulness of Plan III and IV rates will be made by the Commission.

Certain rules and regulations are applicable to Plan III and Plan IV services (see appendix I and II). Tariffs for these plans were published to apply on "Freight, All Kinds," in trailers on flatcars, loaded or empty. Exceptions are:

1. Articles of exceptional value
2. Bulk commodities
3. Explosives

A major stipulation regarding the mixture of various commodities has been included as a protection against undue diversion of boxcar traffic to the all commodity rate. Under Plan III of most eastern railroads the weight of any one article generally may not exceed 60 percent of the total weight of lading on each flatcar. A similar limitation of 50 percent applies under Plan IV of the Trans-Continental Freight Bureau.

There apparently has been considerable shipper opposition to these restrictions. Operational experience should determine the desirability or necessity for this particular regulation.

Charges and Costs to Shippers Under Piggyback Plans III and IV

Various data regarding out-of-pocket costs by common motor and rail carriers were available on line-haul movements. Very little published information, however, was available as to total costs to shippers utilizing rail Plans III and IV. This report attempts to supply such cost information as was available in order to better determine the potential value of piggyback services to users.

Primary emphasis in this section of the report will be given to determining total shipper costs under piggyback Plans III and IV. Much of the data shown regarding costs that must be added to the rail line-haul rate were based on actual operating experiences of shippers in eastern and midwestern areas. These data are believed reasonably indicative of costs under Plans III and IV in most other areas of the United States, including the Pacific Northwest.

Rail Charges

There is no Plan III service between Washington and Oregon processing centers and the Chicago, St. Paul, Minneapolis market areas available to shippers at the present time.

Plan IV transcontinental rates of $924 a car have been published between Chicago, and Seattle, Tacoma, Spokane and Portland.[5] These rates were to become effective October 15, 1958, but were suspended by I.C.C. before the effective date until May 14, 1959. The rates went into effect at the end of the suspension period and carry an expiration date of June 14, 1961.

The lawfulness of these rates as well as Plan IV rates of $924 a car between Chicago and Los Angeles and San Francisco remain under investigation in I. and S. Docket No. 7034, et al.

Should I.C.C. proceedings concerning the lawfulness of Plan III and Plan IV rates be decided in favor of the railroads, a transcontinental Plan III service between Chicago and the West Coast might also be made available if the railroads considered potential business warranted it.

The Plan IV rate between the two areas of $924 appeared to have been computed by multiplying an average rail distance of 2,310 miles by 40 cents. The 40 cents a car mile, or 20 cents a mile for each trailer, is the amount the railroads judged necessary to meet all types of motor competition and particularly private carriage and, at the same time, provide a reasonable and just return. This was the approximate avoidable costs of users of the substituted rail service.

On this basis, a Plan III transcontinental flatcar rate between Chicago and the Pacific Coast terminals would be approximately $1,155 a car, or 50 cents a car mile (25 cents a trailer under Eastern Railroad Plan III tariffs) over the average distance of 2,310 miles.

Other Costs to Shippers

In addition to the terminal to terminal rail rate, shippers must bear other costs, indicated earlier, which are necessary to complete a door-to-door service.

For example, the transcontinental Plan IV charge of $924 between the Pacific Coast and Chicago represented a rate of 154 cents per 100 pounds on 60,000 pounds. The additional cost to shippers to complete the movement would be around 47 cents per 100 pounds.[6] The estimated charge of $1,155 for piggyback service under Plan III between the two areas would mean a rate of 165 cents per 100 pounds on 70,000 pounds lading. The added cost to shippers under Plan III was about 36 cents per 100 pounds (tables 4 and 5). The difference in "other costs" in the two plans of 11 to 12 cents per 100 pounds was about the same as the difference between the base rates--that is, 50 cents a rail mile per

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[5] Item 4500-C, Supplement No. 45 to T.C.F.B. Freight Tariff No. 1-G, I.C.C. No. 1588, and Item 2800-C, Supplement No. 33 to T.C.F.B. Freight Tariff No. 2-X, I.C.C. No. 1590.

[6] Estimates of shipper costs under Plans III and IV are based on data presented in testimony and exhibits in I.C.C. Docket No. 32533 and I. and S. Docket No. 7034.

TABLE 4.--Costs borne by shippers, other than rail line-haul charge, for selected private shippers using Plan III and estimated costs under Plan IV, in cents per 100 pounds

Firm number	Plan number	Lease of equipment[1]	Origin		Destination		Total "other" costs
			Loading[2]	Drayage[3]	Drayage[3]	Unloading[2]	
			Cents per 100 pounds				
1	III	[4,5] 17.9	3.0	7.4	8.6	3.0	39.9
	IV	[4,5] 26.5	3.0	8.6	10.0	3.0	51.1
2	III	12.9	[5] 9.6	8.8	8.8	[5] 9.6	49.7
	IV	20.7	[5] 9.6	10.3	10.3	[5] 9.6	60.5
	III	11.4	[5] 9.0	8.0	7.4	[5] 7.6	43.4
	IV	19.0	[5] 9.0	9.3	8.6	[5] 7.6	53.5
3	III	12.9	3.9	8.4	5.0	3.9	34.1
	IV	20.7	3.9	9.8	5.8	3.9	44.1
4	III	12.9	4.0	8.0	10.0	4.0	38.9
	IV	20.7	4.0	9.3	11.7	4.0	49.7
5	III	10.7	4.0	10.0	10.0	4.0	38.7
	IV	18.2	4.0	11.7	11.7	4.0	49.6
6	III	10.7	4.0	8.9	4.0	4.0	31.6
	IV	18.2	4.0	10.4	4.7	4.0	41.3
Ave. III		11.9	3.8	8.5	7.7	3.8	35.7
Ave. IV		19.6	3.8	9.9	9.0	3.8	[6] 48.1

[1] Plan III data represent cost of leasing two trailers for 6 days at specified rates; Plan IV includes additional cost of flatcar at $8.50 a day for 4 days or 5.7 cents per 100 pounds, basis 60,000 lbs. Lease periods are based on estimated transit time between Pacific Northwest and Chicago.

[2] Loading and unloading costs are generally 3 to 4 cents per 100 pounds. Costs shown above this figure include labor of drayman at the same rate as charged for drayage.

[3] Drayage cost (and time) may include some labor expense of driver at drayage rate for loading and unloading.

[4] Costs higher than average as trailers were refrigerated units leased at $12.50 a day per trailer.

[5] Not included in average.

[6] Includes additional cost of 2 cents per 100 pounds for loading and unloading trailers to and from rail flat cars.

Source: Based on testimony and exhibits in ICC Docket No. 32533 and I & S Docket 7034.

flatcar under Plan III versus 40 cents a mile under Plan IV.

Actual costs of private shippers utilizing Plan III and IV services of eastern railroads, as shown in tables 4 and 5, were based mainly on shipments between eastern cities and St. Louis or Chicago. Terminal end movements consisted largely of local plant to rail ramp at origin and rail ramp at destination to nearby warehouse or distribution center. These facts should be considered when analyzing the data presented in terms of individual shipper needs and location.

Equipment Requirements

Under Plan III the shipper must furnish the trailers to be hauled and under Plan IV both the trailers and flatcars. In addition, tractors must

TABLE 5.--Unit costs other than rail line-haul charge for certain shippers using railroad Plan III service

Firm number	Origin	Destination	Trailer rental	Drayage		Loading	Unloading
				Origin	Destination		
			Per day	*Per hour*			
1	Philadelphia	Chicago	[1] $12.50	* $6.45	* $7.50	3¢/100 lbs.	3¢/100 lbs.
2	Brooklyn	Chicago	* 9.00	* 7.75	* 7.75	$7.75/hr.[2] + 3¢/100 lbs.	$7.75/hr.[2] + 3¢/100 lbs.
	Cranford, N.J.	Chicago	* 8.00	* 7.00	* 6.50	$7.00/hr.[2] + 3¢/100 lbs.	$6.50/hr.[2] + 3¢/100 lbs.
3	St. Louis, Mo.	Jersey City	* 9.00	* 5.40	* 6.75	$3.25/hr.	$3.25/hr.
4	Philadelphia	Chicago	* 9.00	* 6.25	* 7.00	4¢/100 lbs.	4¢/100 lbs.
5	Hillside, N. J.	St. Louis, Mo.	* 7.50	(10¢/100 lbs.)	(10¢/100 lbs.)	4¢/100 lbs.	4¢/100 lbs.
6	New York	Chicago	* 7.50	(8.9¢/100 lbs.)	(4¢/100 lbs.)	4¢/100 lbs.	4¢/100 lbs.
	Average of * items		8.33	6.57	7.10	-	-
	Average of 10 * items		-	$6.84		-	-

[1] High rental cost due to mechanical refrigerated unit.
[2] Drayage rates charged for services of tractor driver for loading and unloading.

Source: Based on testimony and exhibits in I.C.C. Docket No. 32533 and I & S Docket No. 7034.

be provided for moving the trailers from shipper docks to rail ramps. This equipment can be either leased or owned by the shipper. Very little information, however, was available regarding owner operating costs of such equipment under the particular requirements of piggyback operations. For this reason, equipment and drayage costs developed in this report are based on leasing charges incurred by shippers actually using piggyback services.

Of the six firms shown in table 5 for which information on leasing costs were available, five indicated specific rental rates for trailers ranging from $7.50 to $9 a trailer a day. The average rate was $8.33. A sixth firm indicated that its rental cost for refrigerated trailers was $12.50 a day. The cost of transporting frozen fruits and vegetables would be somewhat higher than for non-frozen products as these commodities must be kept at zero temperature requiring adequate refrigerated trailers. Rental on dry freight trailers has been quoted as low as $4 a day, depending on location, availability, type, and general condition of the unit.

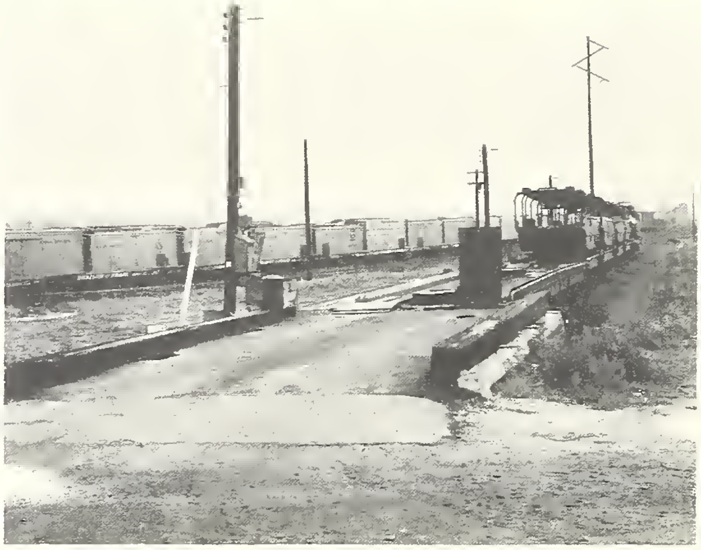
Trailer specifications for fruit and vegetable processors, as well as shippers of general farm supplies, undoubtedly will vary greatly with the specific commodity handled and the season of the year when shipment is made.

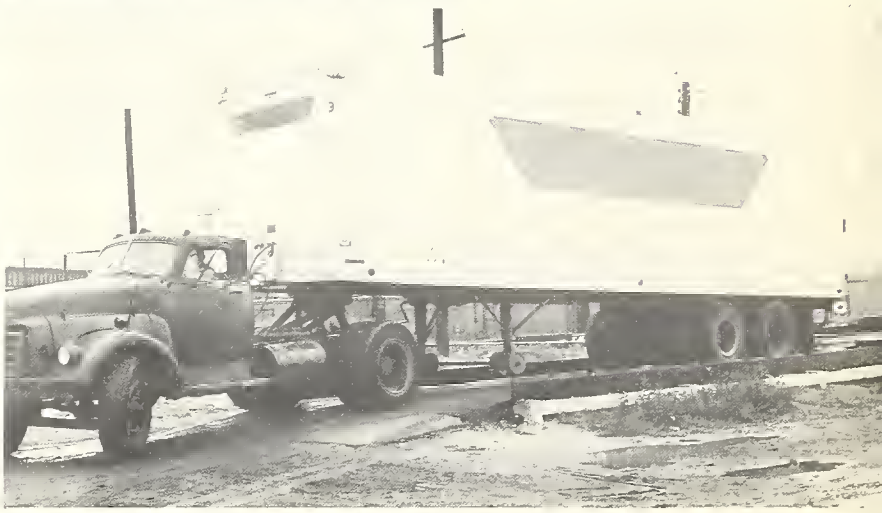
Flatcars as well as trailers must be provided by the shipper under Plan IV. Available information indicated

Loading Trailers on Flatcars --

1. Truck trailer being checked out before loading onto rail flat-car for line haul movement.

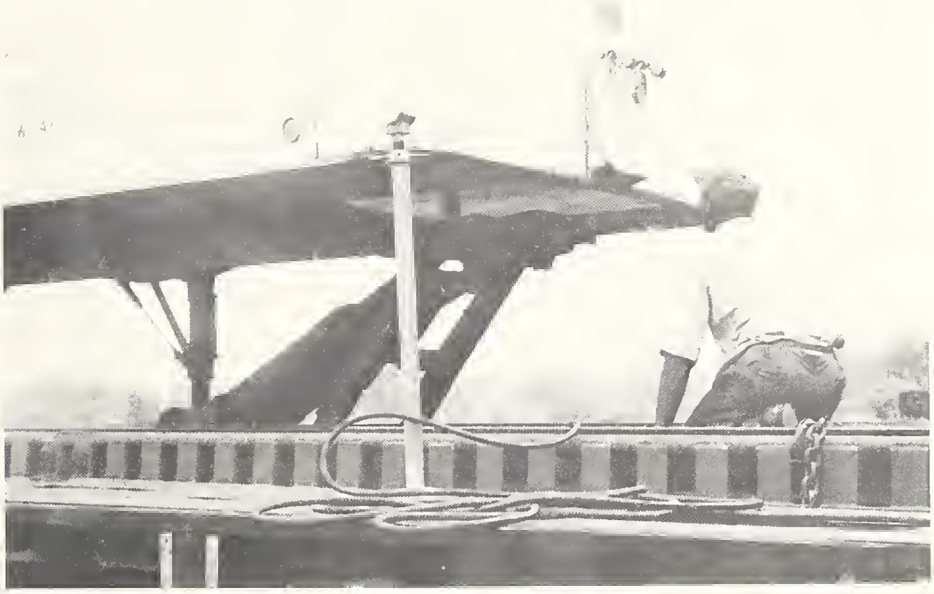
2. Front end view of loading ramp. Empty automobile trailers were removed from flatcars before loaded trailers were moved on.



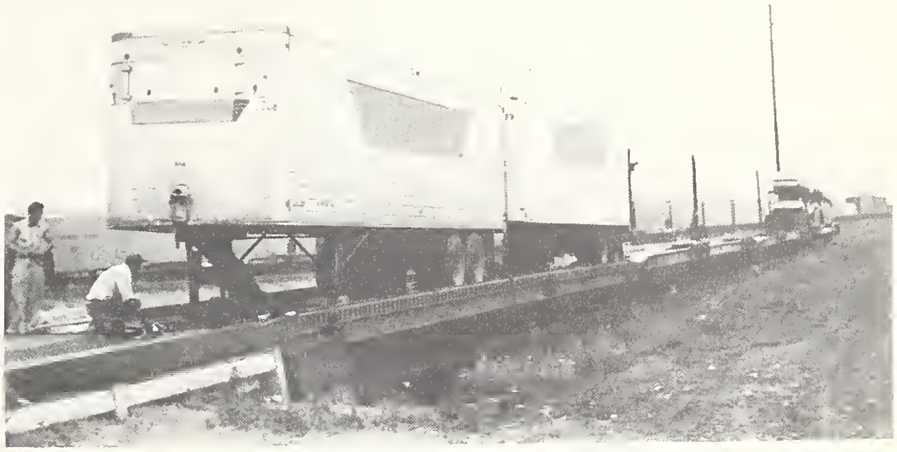


3. First trailer being backed over loading ramp and onto flatcar.

4. Second trailer moving onto flatcar from loading ramp.



5. Securing trailers to flatcars. Picture shows retractable trailer hitch being raised into position by pneumatic wrench.



6. Truck trailers ready for piggyback rail haul to destination terminal.

that the standard rental fee for a flatcar capable of transporting two trailers was around $8.50 a day. In most cases, the flatcars were rented to shippers on a month-to-month basis for periods of 3 or 6 months, subject to 30-day cancellation notice. Some shippers using Plan IV have indicated difficulty in obtaining flatcars when and where they are needed. Many of the railroads were purchasing specially designed flatcars to meet present and potential demands of piggyback movements. The most common of these cars were from 75 to 85 feet in length carried two trailers, and averaged around $15,000 in cost.

Drayage

Movement of a commodity from a shipper's platform to a railroad terminal or ramp, or vice versa, is commonly referred to as drayage. In the case of Plans III and IV, drayage usually included the cost of hiring the services of a tractor and driver for the period of time required to transfer the trailer to and from the rail ramp.

Tractors and drivers were usually hired by the hour. The average rate paid by four firms at both origin and destination points was $6.84 an hour (table 5). These rates ranged from a low of $5.40 an hour to a high of $7.75 an hour. Total cost to a shipper for drayage depended, of course, on the time required to complete the movement. Distance from rail ramp and degree of traffic congestion were two important contingent factors. A third factor which, in some instances, was an important cost element was the utilization of the tractor driver for loading or unloading the trailer. This might require several hours at drayage rates.

Loading and Unloading

Loading and unloading the freight to and from the trailers was a third major cost item that must be added to the shipper's rail cost. This cost was the most difficult to establish in terms of average time required and labor charges. Equipment rental and drayage costs usually were indicated in terms of dollars an hour or a day. Loading and unloading costs, however, were reported largely in terms of cents per 100 pounds, as shown in table 5. Most of the firms reported loading or unloading costs of 3 to 4 cents per 100 pounds.

On the basis of an average cost of 3.8 cents per 100 pounds, loading and unloading 35,000 pounds would be twice $13.30, or a total cost to the shipper of $26.60. On 30,000 pounds of freight the cost would be $22.80 for both loading and unloading the trailer. Type of merchandise shipped and dunnage requirements were important elements in this cost area.

Shippers using Plan IV are also responsible for loading and securing the truck trailers onto the rail flatcars and unloading the trailers from the cars at the end of the rail line-haul. Fragmentary data indicated that the costs of these services were around 1 to 3 cents per 100 pounds for two trailers and a total lading of 60,000 pounds. The costs of such services, however, are not always readily definable on a unit basis as the services might be included in an overall charge for drayage service or performed by the shipper at an hourly rate. Techniques for loading and securing truck trailers to flatcars are constantly being improved and it is believed that the added cost to Plan IV shippers for these services would average around 2 cents per 100 pounds.

Estimated Cost to Shippers

Tables 6 and 7 show estimated shipper's costs for moving two loaded trailers between Portland or Seattle and Chicago or Minneapolis under Plans III and IV. The rail line haul transit time was approximately 4 days between Portland or Seattle and Chicago and 3 days between Portland or Seattle and Minneapolis.

Trailers were leased for a period of 4 to 5 days depending on the haul, with an extra day added for terminal end handling. Plan III costs were computed on a total lading of 70,000 pounds against 60,000 pounds under Plan IV. These weights represented the usual maximum allowable ladings at the flat rail charge per car under Plan III tariffs of eastern railroads and trans-continental Plan IV tariffs, respectively. Charges on permissible

TABLE 6.--Plan IV: Estimated costs to shippers, including costs other than rail line-haul charge, between Portland or Seattle and Chicago or Minneapolis, 60,000 pound lading

Cost items, including charges other than plan IV rail line-haul	Between Portland or Seattle and			
	Chicago		Minneapolis	
	Dollars	Cents per 100 lbs.	Dollars	Cents per 100 lbs.
Loading at origin [1]	22.80	3.8	22.80	3.8
Drayage at origin [2]	54.72	9.1	54.72	9.1
Lease on 2 trailers [3]	83.30	13.9	66.64	11.1
Lease on flatcar [4]	34.00	5.7	25.50	4.2
Loading and unloading flatcars [5]	12.00	2.0	12.00	2.0
Drayage at destination	54.72	9.1	54.72	9.1
Unloading at destination	22.80	3.8	22.80	3.8
Subtotal	284.34	47.4	259.18	43.1
Rail line-haul (Plan IV) [6]	924.00	154.0	924.00	154.0
Total costs	1,208.34	201.4	1,183.18	197.1

[1] Loading and unloading costs computed at rate of 3.8 cents per 100 pounds.

[2] Drayage time estimated at 4 hours per trailer. Drayage costs based on average charge of $6.84 per hour per trailer for 2 trailers.

[3] Lease time based on present freight schedules and allowing 1 day for terminal end handling: Portland to Chicago - 5 days; Portland to Minneapolis - 4 days. Total lease cost for 2 dry-cargo type trailers based on average charge of $8.33 per trailer per day.

[4] Lease time based on present freight schedules; Portland to Chicago - 4 days; Portland to Minneapolis - 3 days. Leasing cost based on charge of $8.50 per day.

[5] Cost of loading and unloading trailers to and from rail flatcars and tie-down operations estimated at 2 cents per 100 pounds.

[6] Item 4500-C, Supplement No. 45 to T.C.F.B. Freight Tariff No. 1-G, I.C.C. No. 1588, and Item 2800-C, Supplement No. 33 to T.C.F.B. Freight Tariff No. 2-X, I.C.C. No. 1590.

TABLE 7.--Plan III[1]: Estimated costs to shippers, between Portland or Seattle and Chicago or Minneapolis, 70,000 pound lading

Cost items, including charges other than Plan III rail line-haul charge	Between Portland or Seattle and			
	Chicago		Minneapolis	
	Dollars	Cents per 100 lbs.	Dollars	Cents per 100 lbs.
Loading at origin [2]	26.60	3.8	26.60	3.8
Drayage at origin [3]	54.72	7.8	54.72	7.8
Lease on 2 trailers [4]	83.30	11.9	66.64	9.5
Drayage at destination	54.72	7.8	54.72	7.8
Unloading at destination	26.60	3.8	26.60	3.8
Subtotal	245.94	35.1	229.28	32.7
Rail line-haul (plan III)	1,155.00	165.0	1,155.00	165.0
Total costs	1,400.94	200.1	1,384.28	197.7

[1] There is no Plan III service, as such, between the two areas at the present time. The rail line-haul charge indicated is an estimate of what the charge might be based on Plan III rates in eastern territories.

[2] Loading and unloading costs computed at rate of 3.8 cents per 100 pounds.

[3] Drayage time estimated at 4 hours per trailer. Costs based on average charge of $6.84 per hour per trailer for 2 trailers.

[4] Lease time based on present freight schedules and allowing one day for terminal end handling: Portland to Chicago - 5 days; Portland to Minneapolis - 4 days. Total lease cost for 2 dry-cargo type trailers based on average charge of $8.33 per trailer per day.

lading above these quantities are normally on a hundredweight basis.

It should be noted again that there is no Plan III service between the two areas at the present time. The rail line-haul charge used in this text was an estimate of what the charge might be based on Plan III rates in eastern territories.

Total costs to shippers for transportation between Portland and Chicago under the circumstances indicated in tables 6 and 7 were $1,208.34 for Plan IV and $1,400.94 for Plan III, or about 200 cents per 100 pounds either plan. Shipper costs between Portland and Minneapolis were a few cents less per 100 pounds because of 1 day less transit time. Unit charges and costs for the various services, as well as time required to complete a haul, should be fitted to the particular needs of a shipper.

Cost data in tables 6 and 7 assumed trailers loaded to maximum lading under the standard flatcar charge of $924 for Plan IV and the estimated charge of $1,155 for Plan III. However, average trailer loads of a shipper may differ from the allowable ladings. If such is the case, costs per 100 pounds would vary accordingly.

Costs and Services to Shippers Under Private Carriage, Piggyback, and Regular Common Carrier

In comparing the various modes of transportation pertinent to this study, total cost to shipper and flexibility of service were major factors to consider. A third important factor somewhat distinct from the above was loss and damage during handling and transit. This often was a significant item to shippers and a considerable nuisance to customers, as they must go through the often lengthy procedure of processing claims.

Costs

The round-trip cost of 37 cents a vehicle mile used for private motortruck transportation costs for comparative purposes was based on operations of five Pacific Northwest processors hauling processed fruits and vegetables to western and midwestern markets in their own trucks with various return loads. Rail carload rates were taken from published tariffs. Data relating to piggyback rates were based largely on information contained in I.C.C. Docket No. 32533.

Transportation costs, of course, will vary with each type of operation. Many factors, including specific efficiencies each shipper is able to achieve, help to determine his costs per 100 pounds or vehicle costs per mile of operation. Under a different set of circumstances, a well-balanced two-way private trucking operation may result in transportation costs well below the 37 cents a mile indicated above. At the same time, costs of alternative methods of transportation would likely change and comparisons between the various modes could vary substantially from those shown in the following text.

Certain limitations should be pointed out in comparing costs to shippers of moving goods under the various modes of transportation. It would serve no purpose to compare Plan III and IV rates to shippers with other services which encompass a complete door-to-door movement. Plan III and IV rail charges represented only a part of the total cost necessary to complete a shipment. They were specifically designed by the railroads to eliminate the costly and time consuming terminal end expenses of pickup and delivery. Therefore, total costs to shippers under Plans III and IV were used for comparative purposes, rather than the specific rail charges for terminal to terminal service. While these costs are believed to be based on the best information presently available, they should be considered only as indicative of the total costs involved under a given set of circumstances.

Plans III and IV were not intended by the railroads to divert an appreciable quantity of the lower rated carload traffic to the all commodity rate. Rules stating that the rates will not apply when more than a specified percentage of the weight of the lading consists of any one commodity have been included in the tariffs for this purpose.

An approximation of costs to shippers under private carriage operations is indicated in table 8 for various trip distances. At an estimated vehicle operating cost of 37 cents a mile, a 35,000 pound shipment over 2,000 miles would cost $740.00, or 211 cents per 100 pounds. As shown in the table, the cost per 100 pounds varied substantially for the various payloads and distances. The

TABLE 8.--Estimated one-way motortruck transportation costs per mileage indicated, at various round-trip payloads

One-way mileage	One-way trip cost[1]	27,500 pounds[2]	30,000 pounds[2]	32,500 pounds[2]	35,000 pounds[2]	37,500 pounds[2]
		Equivalent cost in cents per 100 pounds[3]				
1,000	370.00	135	123	114	106	99
1,250	462.50	168	154	142	132	123
1,500	555.00	202	185	171	159	148
1,750	647.50	235	216	199	185	173
2,000	740.00	269	247	228	211	197
2,250	832.50	303	278	256	238	222
2,500	925.00	336	308	285	264	247
2,750	1,017.50	370	339	313	291	271
3,000	1,110.00	404	370	342	317	296

[1] One-way trip costs based on average transportation cost of 37 cents per vehicle mile of five Pacific Northwest Processors. One-way costs in cents per 100 pounds are the same as round-trip costs when the load in each direction is the same. Where the loads in each direction are of different weights, the average of the outbound load plus the inbound load should be taken into consideration in computing the cost per hundredweight. For example, the cost of 317 cents per 100 pounds for a 35,000 pound shipment assumes a 35,000 pound return load. Should there be no return load the cost would be 634 cents.

[2] Costs shown in these columns are one-way costs based on round-trip loads indicated.

[3] Rounded to nearest cent.

cost per 100 pounds on a 35,000 pound payload at 2,250 miles would be 238 cents and at 1,750 miles 185 cents. A 30,000 pound payload over 2,000 miles would cost the shipper about 247 cents per 100 pounds.

A private carrier, of course, is faced with the problem of balancing his operations with an adequate backhaul of goods or raw materials. Otherwise the operating costs for the round trip, particularly on a long haul, would be prohibitive.

As can be seen in table 9, piggyback Plan IV will cost the shipper approximately 194 cents per 100 pounds, under the stated conditions, for Pacific Coast to Chicago transcontinental service, and 189 cents to Minneapolis. Frozen food shipments in refrigerated trailers would add 10 to 12 cents to costs per 100 pounds.

Piggyback costs were substantially higher than the carload rate of 157 cents for a similar shipment of canned fruits and vegetables, but somewhat lower than rates on frozen foods. Many western frozen fruit and vegetable processors find it necessary to warehouse a number of their 60,000 pound carload shipments at destinations simply because many customers cannot take that large a quantity at any one time unless it is a fast moving item such as strawberries or peas.

At 37 cents, private truck operations between Seattle and Chicago would result in a cost of 224 cents per hundredweight. On the other hand, private carrier costs from Seattle to Minneapolis, a lesser highway distance, would be substantially less than carload rates on frozen foods.

A somewhat different picture was evident in comparing piggyback costs with carload rates for potential backhaul commodities (table 10). Items such as agricultural equipment, implements, petroleum products, tires, automotive equipment, and steel sheets make up a large part of westbound traffic destined for Pacific

Northwest cooperatives. Plans III and IV could save cooperatives from 10 to 50 percent of their transportation costs on articles such as these. However, on shipments of agricultural commodities such as animal and poultry feeds, and milk replacer, carload rail rates were below piggyback costs.

Piggyback Plans III and IV would tend to offer advantages to the shippers over for-hire carriers on long distance shipments providing backhaul traffic could be obtained. Under piggyback services, the shipper would have the economy of long haul rail transportation, plus the greater flexibility of motortruck transportation for pre and post rail terminal handling of products. Adequate backhaul must be maintained, however, to make Plan III and IV piggyback rates attractive. This is a primary limiting factor on these services.

Service

Shippers must consider customer needs and demands in determining their distribution policies and standards. Thus customer service may at times overshadow the cost element in meeting competition.

TABLE 9.--Rail rates on canned and frozen fruits and vegetables versus estimated costs of private motor carriage and piggyback service, Pacific Northwest points to Chicago and Minneapolis, in cents per 100 pounds

Origin	Destination	Rail[1]				Private[5] motor carrier	Piggyback[6]
		Carload		Less-than-carload			
		Canned[2]	Frozen[3]	Canned	Frozen[4]		
				Cents per 100 pounds			
Seattle	Chicago	157	210	509	841	224	194
	Minneapolis	157	206	484	799	179	189
Yakima	Chicago	157	210	470	775	217	194
	Minneapolis	157	206	447	737	171	189
Pasco	Chicago	157	210	451	743	207	194
	Minneapolis	157	206	429	707	162	189
Walla Walla	Chicago	157	210	451	743	210	194
	Minneapolis	157	206	429	707	165	189
Portland	Chicago	157	210	509	841	234	194
	Minneapolis	157	206	484	799	188	189
San Francisco	Chicago	157	210	509	841	234	194
Los Angeles	Chicago	157	210	509	841	225	194

[1] Trans-continental Freight Tariff 1-W.

[2] Minimum weight - 75,000 pounds.

[3] Minimum weight - 60,000 pounds. Includes charges for mechanical refrigeration.

[4] Does not include charge for mechanical refrigeration which is approximately $180 per car, Seattle and Chicago added cost per 100 pounds would vary with weight of lading.

[5] Estimated on basis of 37 cents per vehicle mile and 35,000 pounds average round-trip load.

[6] Based on rail line-haul charges under Plan IV and "other" costs of shippers, but excluding loading and unloading costs. Use of refrigerated trailers would add around 10 to 12 cents to costs per 100 pounds.

TABLE 10.--Rail rates, private motor carrier, and piggyback costs on specified farm supplies, Chicago and Minneapolis to Seattle and Portland, in cents per 100 pounds

Commodity	Origin	Destination	Rail[1]		Private motor[2]	Piggy-back[3]
			Carload	Less-than-carload		
			Cents per 100 pounds			
Automotive equipment	Chicago	Seattle	404[4]	663	224 234	194
	Minneapolis	Portland	376[4]	597	179 188	189
Agricultural implements and parts, hand	Chicago	Seattle	315[4]	740	224 234	194
	Minneapolis	Portland	276[4]	690	179 188	189
Agricultural implements and parts, other than hand	Chicago	Seattle	307[5]	740	224 234	194
	Minneapolis	Portland	296[6]	690	179 188	189
Petroleum products	Chicago	Seattle	332[7]	512	224 234	194
	Minneapolis	Portland	293[7]	460	179 188	189
Dry milk powder	Chicago	Seattle	157[8]	574	224 234	194
	Minneapolis	Portland	157[8]	517	179 188	189
Feed, animal and poultry	Chicago	Seattle	166[9]	466	224 234	194
	Minneapolis	Portland	145[9]	419	179 188	189
Dairy and poultry equipment	Chicago	Seattle	401	663	224 234	194
	Minneapolis	Portland	354	597	179 188	189
Tires	Chicago	Seattle	305[10]	781	224 234	194
	Minneapolis	Portland	260[10]	693	179 188	189
Galvanized steel sheets	Chicago	Seattle	222[9]	734	224 234	194
	Minneapolis	Portland	216[9]	683	179 188	189

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[1] Trans-continental Freight Tariff No. 1-H.

[2] Estimated on basis of 37 cents per vehicle mile and 35,000 pounds lading. (Example to clarify private motor carrier cost column--Automotive equipment: Chicago to Seattle 224 cents per 100 pounds; Chicago to Portland 234; Minneapolis to Seattle 179; Minneapolis to Portland 188 cents)

[3] Based on rail line-haul charges under Plan IV and "other" costs of shippers, but excluding loading and unloading costs.

[4] 30,000 pound minimum.

[5] 44,000 pound minimum.

[6] 40,000 pound minimum.

[7] In packages or bulk--30,000 pound minimum; in steel drums--60,000 pound minimum.

[8] 75,000 pound minimum.

[9] 50,000 pound minimum.

[10] 35,000 pound minimum.

This truck trailer is being loaded on a flatcar in Chicago, only a few blocks from the Loop district.

Essentially, there are three principal avenues which a shipper may take in the distribution of his products. He may ship his products by some form, or forms, of for-hire carrier, by private carriage, or by utilizing both for-hire and private carriage according to his needs. The degree of control which the shipper feels necessary in the distribution of his products is rapidly increasing in stature as a motivating force in his choice of transportation. Tied in closely with control of distribution facilities is the ability of the shipper to meet the demands of customers for a more flexible type of delivery service.

Piggyback Plans III and IV offer possibilities for meeting the changing needs of both shipper and consignee. The plans combine the economic advantage of rail transportation over the longer distances with the short haul flexibility of motortrucks. The shipper owns or leases the equipment necessary to complement the rail terminal to terminal service. He thus is better able to schedule loading time with production and achieve maximum inventory efficiency.

At the destination terminal, the shipper is able to deliver part or all of his products with a minimum of handling. The speed and flexibility thus obtained in deliveries also enable customers to maintain their inventories at desirable levels. Piggyback cars averaged around 175 miles a day against 45 miles for a boxcar due to reduced switching and loading time and the fact that they can run on roller-bearing fast freight.

While piggyback holds considerable opportunity for savings to many shippers, its advantages are presently limited largely to the longer haul. Regardless of rate levels, railroad Plans III and IV cannot approach motor carrier service for stop-offs, pool distribution, and in less-than-truckload traffic. For example, 70 percent of the members of the Eastern Industrial Traffic League, Inc., indicated that their position in regard to motor common carrier services would not be altered greatly by their use of Plan III.

Some of the reasons given by firms for continuing use of motor carrier service are:

1. Motor carrier service is more flexible in many cases.
2. Motortrucks depart when loaded, resulting in more frequent departures and faster deliveries.
3. Tonnage available for shipment is often insufficient to make railroads' Plans III and IV economical.
4. Railroad rule restricting weight of any one article to 50 or 60 percent of total lading limits use of Plans when only one article is available for shipment.
5. Shippers are not always able to lease trailers, flatcars, or other equipment when needed.
6. Smaller shipments are handled better and more economically by truck.

Loss and Damage

An important factor favoring piggyback service is that loss and damage in transit is reportedly reduced to a minimum. Most companies using piggyback service indicated that damage claims and pilferage losses were cut sharply. In an exhibit in I.C.C. Docket No. 32533, one major eastern railroad reported the following loss and damage claim payments per $100 revenue for 1957:

All commodities	-	$1.75
All commodities, other than "Products of Mines"	-	2.47
Forwarder traffic	-	4.45
Piggyback - Plan I		
With fire claims	-	0.29
Without fire claims	-	0.02
Piggyback - Plan II		
With fire claims	-	1.26
Without fire claims	-	0.46

Further evidence testifying to the low claim rate of piggyback service compared with boxcar traffic was the loss and damage claim payment expense incurred by 11 railroads in handling Plan III traffic. Claim payment expense per flatcar ranged from a low of 21 cents for one railroad to a high of $6.82 a car for another. The claim payment expense of the 11 railroads averaged $2.50 a car on Plan III traffic handled. Comparable data for loss and damage on other traffic handled by these railroads were not readily available. However, loss and damage payments per carload of certain commodities of U.S. Class I carriers for 1958 furnished a basis for comparison (table 11).

Some railroads believed that the low claim ratio under piggyback plans

TABLE 11.--Loss and damage payments of Class I railroads on selected commodities, per car and per $100 revenue

Commodity	Loss and damage per car	Loss and damage per $100 revenue	Commodity	Loss and damage per car	Loss and damage per $100 revenue
Frozen foods	$10.45	$0.93	Fresh and cured meats	$8.86	$1.80
Fresh fruits (ex. citrus)	14.74	3.01	Grain	4.18	1.17
Fresh fruits (citrus)	13.49	1.93	Livestock	4.75	1.92
Melons	67.25	10.49	Agricultural implements	8.57	1.78
Vegetables, fresh	16.44	3.02	Freight forwarder traffic	16.87	3.70
Food products in cans	19.69	4.27	All less carload freight	3.82	4.20

Source: Association of American Railroads, Freight Claim Division.

compared with moving similar commodities in boxcars was due partly to the trailers being mounted on rubber tires. This permitted a cushioning of the vertical and horizontal shifting and vibrating disturbances from train movement and impact. Tie down chains also effected a spring action of the trailer which tended to further cushion the load.

Piggyback Possibilities

Usually railroads have a cost advantage in the transportation of most commodities over the longer distances. And they have largely maintained their competitive edge in this regard. On the other hand, trucks offer a definite advantage in load and service flexibility. Thus, it seems that a cooperative transportation program that utilizes the best points of both rail and truck service has much to offer in the way of potential savings.

With some 1,600 to 2,200 miles separating the major fruit and vegetable processing centers of Washington and Oregon and the market cities of St. Paul, Minneapolis, and Chicago, most of this traffic moves by rail.

In 1957, over 90 percent of the canned and frozen fruits and vegetables shipped to midwestern markets by the processors in this study went by rail. And practically all farm supplies from midwestern and eastern points going to the northern Pacific area moved by this means of transportation.

Two conditions appear basic to the utilization of piggyback services by cooperative shippers. One is the necessity of approximately matching traffic in both directions and the other is obtaining a satisfactory rate.

Once these two primary conditions are met, the advantages and disadvantages of piggyback transportation become more meaningful.

Advantages and Disadvantages

Principal advantages of piggyback services cited by cooperatives and indicated by the study were:

1. Greater flexibility in both product loading and service to customers.

2. Possible speedup in transit time over present rail movement.

3. Reductions in inventory requirements.

4. Smaller lots, split deliveries, multiple pickups, and door-to-door service.

5. Savings in direct transportation costs on higher rated commodities.

6. Advantages of pooling small lots.

7. Reduced loss and damage.

8. Reductions in handling costs.

9. Potential means of expanding total market and improving product distribution.

Many users of piggyback services felt that savings possible through reductions in inventories might outweigh any increases in actual transportation costs. As the demand for more frequent deliveries becomes greater, the importance of this factor will undoubtedly increase.

The most prominent disadvantages of piggyback services to shippers were:

1. Higher transportation costs on lower rated agricultural commodities.

2. Shippers are responsible for protective services under piggyback Plans III and IV.

3. Balanced two-way traffic needed under Plans III and IV.

4. Some additional investment in equipment.

5. Organization difficulties, administrative problems and costs.

Since most of the cooperatives involved already owned and operated some trucking equipment, operating problems such as maintenance, and Federal and State regulations were not completely foreign.

Possible Alternative to Balanced Traffic Limitation

The possible utilization of piggyback service by Pacific Northwest processors on shipments to midwestern markets is restricted due to the limited availability of Plan IV service, with no Plan III service available at all. In addition, a limited volume of backhaul traffic is a deterring factor. This would be particularly true where equipment, such as trailers, tractors, and flatcars must be purchased specifically for Plan III or IV service. Where tractors and trailers are already owned and utilized by the cooperatives in their current operations, this would be less of a problem and fixed costs could be spread over a broader area.

Practically all private companies, forwarders, or shipper associations using Plan III or IV services leased the equipment necessary to these operations. In most cases, the shippers had a fairly well balanced movement in both directions, thereby largely eliminating the generally prohibitive cost of paying the rail charge on empty trailers for the return trip. Under Plan III, trailer rental costs continue whether the trailer is being utilized or not. The same is true under Plan IV where the additional cost of leasing the flatcar becomes excessive when the equipment is not being used effectively.

A transportation service that would eliminate the need for a balanced movement of traffic, and at the same time reduce transportation costs and give the necessary flexibility of service, would offer a possible solution to this problem. Rental firms leasing trailers on a one-way basis, similar to the automobile rental systems that cover the country, would be a big step in this direction. In this way, the shipper would be relieved of the need to return the trailer to point of origin, his rental costs ending after unloading the trailer lading at destination. Thus, West Coast processors would be able to ship their products destined to midwestern markets via piggyback without having to secure a matching volume of traffic for the westbound movement.

A similar arrangement to supply flatcars to shippers on a one-way basis would greatly increase the potential usefulness of Plan IV service.

APPENDIX I. --Railroad piggyback Plan III: Rules and provisions generally applying[1]

1. Application of Rates:

(a) Rates apply only on loaded or empty trailers transported on flatcars from railroad terminal at origin to railroad terminal at destination.

(b) Rates will not apply when more than sixty (60) percent of the weight of the lading consists of any one article. This provision to be applied to the total weight of lading on each flatcar.

(c) Rates will not apply when any of the following articles are included in the lading:

1-Articles described under Rule 3 of Uniform Freight Classification. (Item 33000).

2-Bulk commodities.

3-Explosives as described in Classes A and B, in Agent H. A. Campbell's Tariff 10, I.C.C. 10.

2. Bill of Lading and Certification:

A Uniform Bill of Lading endorsed "Shippers' Load and Count" and "Shippers' Weight" will be issued on each flatcar. Such Bill of Lading must specify:

1-Trailer number(s).
2-Tare Weight of trailer(s).
3-Weight of contents.

Shipper must attach manifest showing total weight of each article loaded in or on each trailer or execute the following certification on the bill of lading and shipping order:

> "Shipper hereby states that the weight of any one article in this consignment does not exceed 60 percent of the total weight of lading on each flatcar."

3. Service:

Trailers must be supplied by shipper at his expense. Railroad will not pay any rental charge on the trailers to the shipper or owner thereof.

Loaded or empty trailers

1-Must be delivered by shipper at his expense to a location adacent to railroad ramp;

2-Will be loaded and secured to flatcar by railroad;

3-Will be unloaded from flatcar and placed at a location adjacent to railroad ramp by railroad.

4. Loading-Unloading of Trailers:

Loading of freight into and unloading it from trailers must be performed by shipper, consignee or their agents and at their expense.

Packing and stowing of freight in trailers must be performed by shipper or his agent and at their expense.

5. Trailer Specifications:

Maximum length of trailer must not be over 40 feet outside measurement.

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[1] Taken from Pennsylvania Railroad Tariff 2170-H, Items 33000 - 33080. Rules and Regulations regarding Plan III traffic of other railroads are generally similar to the above.

Maximum width of trailer body or load (outside measurement) 8 feet.
Maximum tread (outside wall of tire to outside wall of tire) 8 feet, 6 inches.
Maximum height of trailer 12 feet, 6 inches.

Closed trailers must be equipped with closed side and/or end doors and such doors must be tightly fitted and have suitable locking and/or sealing devices on such equipment. Shipper must provide locks and/or seals to adequately secure the doors to protect the lading. Locks placed by shippers will be removed by consignee, and the railroad assumes no responsibility for their return. Open-top or open-side trailers must be protected by tarpaulin or other adequate equipment.

Trailers must be equipped with suitable tie-down brackets and must be in such condition as to permit safe handling in trailer-on-flat-car service.

Trailers must comply with railroad's rules regulating safe loading of trailers on flatcars and protection of equipment.

Identifying marks and numbers must be plainly shown on each trailer.

6. Railroads' Responsibility:

Railroad responsibility for loss and damage shall commence when trailer is delivered to railroad terminal at origin and shall terminate when trailer is delivered to consignee at railroad destination terminal.

7. Protective Service:

Railroad will not furnish refrigeration, heat, ventilation, or other protective service.

8. Detention Charge:

Trailers not removed from railroad premises by consignee, owner or their agent within twenty-four (24) hours after the first 10:00 A.M. after car is unloaded and the trailers are placed for delivery adjacent to railroad's ramp, (Saturdays, Sundays, and Holidays excepted) (See Note) will be assessed a charge of $5.00 per trailer for each subsequent day of twenty-four (24) hours or fraction thereof.

NOTE:--The term "holidays" includes only the following:

New Year's Day
Washington's Birthday
Memorial Day
Independence Day
Labor Day
Thanksgiving Day
Christmas Day

In the event any one of the above holidays occurs on a Sunday, the following Monday will be considered a holiday.

APPENDIX II.--Railroad piggyback Plan IV: Rules and provisions generally applying[1]

1. Application of Rates:

Rate applies only when no one commodity or commodites in the same rate item taking the same rate on the flatcar exceeds 30,000 lbs. The weight of the lading at this charge shall not exceed 60,000 lbs. Weight in excess of 60,000 lbs. not to exceed 20,000 lbs. will be rated at 154 cents per 100 lbs. Total weight of the lading shall not exceed 80,000 lbs.

2. Intermediate Rule:

On shipments of loaded or empty trailers or containers moving under the provisions of this tariff from a point of origin not named in this tariff which is directly intermediate to Los Angeles, Calif., Portland, Ore., San Francisco, Calif., Seattle or Tacoma, Wash., the charge to apply from such unnamed intermediate point will be the charge published herein from Los Angeles, Calif., Portland, Ore., San Francisco, Calif., Seattle or Tacoma, Wash.

On shipments of loaded or empty trailers or containers moving under the provisions of this tariff to a point of destination not named in this tariff which is directly intermediate to Chicago, Ill., the charge to apply to such unnamed intermediate point will be the charge published herein to Chicago, Ill.

3. Application of Service:

(a) Flatcars, trailers and containers shall be furnished by the shipper or his agent. All such equipment, including equipment necessary to secure trailers and containers to the flatcars, shall be approved by the railroad.

(b) Trailers or containers shall be loaded on the flatcar and adequately secured thereto by the shipper or his agents at shipper's expense. The method used shall be approved by the railroad. Trailers or containers shall be unloaded from the flatcar by the consignee or his agent at consignee's expense.

(c) Total length of trailers or containers or both to be loaded or transported on one flatcar shall not exceed 80 feet in over-all length.

4. Carrier's Responsibility:

(a) Carrier's responsibility for loss or damage shall not commence until the trailer or container is loaded on the flatcar, adequately secured for the journey, and accepted by the carrier for movement.

(b) Carrier's responsibility for loss or damage shall end when the flatcar arrives at the destination named in the bill of lading.

(c) All necessary packing and stowing of goods in the container or trailer shall be performed by the shipper or his agent, and the carrier assumes no responsibility for improper or insufficient packing, bracing, or stowage of goods.

(d) Carrier shall not be required to furnish refrigeration, heating, ventilation or other protective services.

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[1] Taken from Trans-Continental Freight Tariff 2-Y, Supplement 30, Item 2800-F. Rules and Regulations regarding Plan IV traffic of most railroads are generally similar to the above.

5. Specifications for Flatcars, Trailers, and/or Containers:

Flatcars, trailers and/or containers furnished by the shipper must comply with the following specifications:

(a) The height and/or width above top of rail of the trailer and/or container when loaded on the flatcar must not be in excess of the published clearances as prescribed over the route of movement in Railway Line Clearance unless otherwise authorized by the railroad.

Flatcars utilized under the provisions of this tariff will not be subject to CTRTB Mileage Tariff 7-P, I.C.C. 4695, and the railroad will not pay a mileage allowance to the owner of the flatcars.

(b) Trailer and container specifications:

1. Maximum length of trailer body or container to be not over 40 feet outside measurement.

2. Maximum width of body or load (outside measurement) 8 feet.

3. Maximum tread (outside wall of tire to outside wall of tire) 8 feet, 6 inches.

4. Maximum height of trailer or container, 12 feet 6 inches. Closed trailers or containers must be equipped with closed side and/or end doors and such doors must be tightly fitted and have suitable locking and/or sealing devices on such equipment. Shipper must provide locks and/or seals to secure adequately the doors and protect the lading. Locks placed by shippers will be removable by consignee, and the carrier assumes no responsibility for their return.

Open-top or open-side trailers must have freight which is loaded therein properly secured and protected by tarpaulin or other adequate equipment.

Trailers must be in such condition as to comply with the carrier's rules regulating safe loading of trailers on flatcars and protection of equipment under the provisions of rule 27 of Western Classification.

6. Terms and Conditions:

When property is shipped at the rate herein, it is subject to terms and conditions stated in this item. A Uniform Bill of Lading in form prescribed by the Interstate Commerce Commission and shown in Western Classification, endorsed "Shippers' load and count" and "Shippers' weight" will be issued.

Such bill of lading will specify:

Trailer and/or Container Number.
Tare Weight of Trailer and/or Container.
Weight of Contents.

Shipper will certify on Bill of Lading that contents of trailer and/or container does not violate provisions of Note 1.

7. Rates Do Not Apply On:

(a) Animals, live.
Articles described under Rule 3 of Western Classification.
Bulk commodities.
Coal.

Coke.
Explosives as described in Classes A and B, Sections 73.53 through 73.93 of Agent H. A. Campbell's Tariff 10, I.C.C. 10.
Game, live.
Ice.
Pigeons, live.
Poultry, live.

(b) Transit privileges other than reconsignment will not be accorded in connection with shipment moving under the rates published in this item.

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